

REEL #29
SHAKIROV, R.

USC2

KHASHIMOV, A. M., et al., Khimiya Prirodnikh Soyedineniy, No 6, 1971, pp 779-784

in veralosidine, the B/C and C/D rings are trans-linked. The second hydroxyl group is located at the C₁₆ and is α -oriented. The structure of veralosinine is thus established as C₁₆- α -acetylveralosidine.

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USC2

KHASHIMOV, A. M., ~~SHAKIROV, R.~~ and YUNUSOV, S. Yu., Order of the Red Banner of Labor Institute of Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Study of Alkaloids from the Above-Ground Part of Veratrum Lobelianum. Structure of Veralosinine"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1971, pp 779-784

Abstract: A study was made of the alkaloids of the above-ground part of veratrum lobelianum, and the structure of veralosinine was corrected. When separating the benzene fraction of the total above-ground part of veratrum lobelianum with an acetate buffered solution with pH 5.8-3.6, alkaloids with a melting point of 156-158° and 180-183° were isolated from the fraction with pH 5.8-5.6 and veratroyl zygadenin with a melting point of 263-265° was isolated from the fraction with pH 5.4-5.2. The infrared spectra for the diketone from a mixture of tetrahydroveralosidines and the diketone from a mixture of tetrahydrosolasodines are presented for comparison. They show that the tetrahydroveralosidine and tetrahydrosolasodine are not identical. Solasodine and veralosidine were subjected to acetolysis and acetylation to further study the structure of veralosidine. Data are presented showing that

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UDC 547.944/945

SAMIKOV, K., ~~SHAKIROV, R.~~ YUNUSOV, S. Yu., Order of the Red Banner of Labor
Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of
Sciences

"Alkaloids from Veratrum Lobelianum. Structure of Germinalin"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1971, pp 790-793

Abstract: A study was made of the alkaloids of the above-ground part of Veratrum lobelianum grown in Dzhergalan. The bases were extracted from the plant gathered at the beginning of vegetation by the usual chloroform method. The procedure is presented for obtaining a base with the composition $C_{39}H_{61}O_{12}N$ with a melting point of 156-158° from the benzene-ethanol eluate of the fraction with pH 8.0-6.6 identical to the base from the above-ground part of V. lobelianum gathered in Kar-Kara [A. M. Khashimov, et al., KhPS, No 6, 779, 1971]. Veralosin, veralosinine, veratroylzygadenin and the new alkaloid germinalin were also isolated. The new alkaloid was studied by nuclear magnetic resonance and infrared spectra and by acetylation. Its structure was established as 3 β (7)-2-methylbutyl, 15 α -(d)-2-methyl-2-butyroxy-, 16 β acetylgermin.

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UDC 547.944/945

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SHAKIROV, R., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Alkaloids of Veratrum Lobelianum"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1971, pp 852-853

Abstract: The study of alkaloids from the above-ground part of Veratrum lobelianum was continued. The experimental procedure and results of infrared and ultraviolet spectral analysis and other test reactions are presented. The known alkaloids germerin, veratroyl-zygadenin, jervine, and pseudojervine and the new alkaloids veralosinin and three bases II (composition $C_{32}H_{51}O_9N$ with a melting point of 157-159°, $[\alpha]_D + 8.2^\circ$), V (melting point 220-221°, $[\alpha]_D - 173.17^\circ$) and VII (with a melting point of 275-277°, $[\alpha]_D - 54.11^\circ$) were isolated.

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USSR

UDC 547.944/945

KHODZHAYEV, B. U., SHAKIROV, R., and YUNUSOV, S. YU., Red Banner of Labor
Institute of Plant Chemistry, Uzbek Academy of Sciences

"Alkaloids of Buxus Sempervirens"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 4, 1971, pp 542-543

Abstract: Buxus sempervirens L. (box tree), now cultivated in the USSR, contained alkaloids which have so far gone completely unstudied.

Using the chloroform method, the authors determined the alkaloid content to various organs of this tree, samples being taken from three cultivation sites.

Four substances were distinguished on the basis of chemical reactions, nuclear magnetic resonance, and mass-spectrometric and infrared data. Precise identification has not been made.

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Alkaloids

USSR

UDC: 547.944/945

KHASHIMOV, A. M., SHAKIROV, R., and YUNUSOV, S. YU., Order of Labor Red Banner
Institute of Chemistry of Plant Substances, Tashkent, Academy of Sciences Uzbek
SSR

"Alkaloids of Veratrum Lobelianum"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1970, pp 339-343

Abstract: Alkaloids in the epigeal part of Veratrum Lobelianum grown in the valley of the Kar-Kara River are reported on for the first time. Upon separation of the total ethereal fraction isolated from the epigeal part of the plant (collection made on 13 May 1968), new alkaloids were differentiated as to solubility and basicity: veralosin $C_{35}H_{55}O_8N$, veralosinin and veralosidin $C_{27}H_{43}O_2N$. It was found that at the outset of the vegetative period, total alkaloids in the epigeal part of Veratrum Lobelianum is 2.5% of dry matter weight, and at the end of this period -- 0.036%. Based on study of chemical properties, infrared, ultraviolet, nuclear magnetic resonance, and mass spectra, and also conversion to tetrahydro-solasodin, the most probable structure and configuration is established for veralosidin.

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USSR

UDC: 547.944/945

OSMANOV, U., ARIPOV, Kh. N., SHAKIROV, T. T., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials

"Isolation of Vincanine and Vincanidine From the Roots of Vinca Erecta"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1973, pp 442-443

Abstract: The usual method used for extracting vincanine and vincanidine from Vinca erecta leaves almost all the vincanidine on the cation exchange resin and requires considerable expenditures of solvent and time for removal. A procedure is developed for extraction by which the vincanine yield is increased by 10% over the conventional method and a satisfactory yield of vincanidine is obtained. Pulverized roots of V. erecta are treated by extraction with H_2SO_4 , the extract is alkalinized with concentrated NH_4OH to pH 8-8.5 and the alkaloids are extracted with chloroform. The chloroform sum is evaporated and phenol alkaloids are extracted with 5% NaOH. The alkali solution is acidified with 10% H_2SO_4 , washed once with ethyl ether, alkalinized with NH_4OH to pH 8-8.5, and phenol alkaloids are extracted with ethyl ether. As the ether condenses, vincanidine crystals precipitate in the amount of 70% of the content in the raw material. The nonphenol alkaloids are transferred from chloroform to 10%
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OSMANOV, U., et al., Khimiya Prirodnikh Soyedineniy, No 3, 1973, pp 442-443

H₂SO₄, alkalized to pH 8-8.5 and extracted with benzene. Evaporation of the benzene solution yields vincanine in the amount of 85% of the content in the raw material.

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Alkaloids

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UDC: 547.944/945

BABAYEV, B., ABDULLAYEV, P., SHAKIROV, T. T., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials

"Isolation of Alkaloids From the Seeds of Haplophyllum Perforatum by the Ion-Exchange Method"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1973, p 445

Translation: In view of the tranquilizing, antispasmodic and anesthetic properties of alkaloids from seeds of Haplophyllum perforatum, it has been felt necessary to develop a method of extracting these alkaloids. The authors propose an ion exchange method of isolating the alkaloid sum from the seeds of H. perforatum which utilizes weak aqueous solutions of mineral acids (0.5-1%). The procedure involves loading 10 kg of pulverized seeds into a 50-liter extractor, and applying continuous extraction with a 1% solution of sulfuric acid. The acid solution of alkaloids is passed through an adsorber containing 3 kg of KU-1 cation exchange resin in the H-form. The extractant flowrate is 500-550 liters/hr/m². After complete extraction of the alkaloids the adsorber is washed with water and the alkaloids are desorbed with a 1.5% solution of 1/2

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BABAYEV, B., et al., Khimiya Prirodnikh Soyedineniy, No 3, 1973, p 445

ammonia in 92% ethyl alcohol. The alcohol eluate is condensed and the aqueous residue of 3-3.5 liters is acidified with 20% sulfuric acid, triply filtered and washed with chloroform. The washed acid solution is alkalized with 25% ammonia, and the alkaloids are extracted with chloroform. The condensed and dried chloroform extract is dissolved in acetone with heating, activated charcoal is added, and the solution is condensed until the solvent is totally removed after filtering. The residue is 52.4 g of fine yellow crystals.

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UDC 547.944.3

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BABAYEV, B., ARIPOV, Kh. N., and SHAKIROV, T. T., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Academy of Sciences of the Uzbek SSR

"Polybuffer Separation of the Alkaloid Sum from Petillium Radiana"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1970, p 776

Abstract: The authors isolate the alkaloids remaining in the mother liquor of Petillium radiana alkaloids after separation of imperlaine, edpetiline, petiline, petilidine, petilidine and petiline. The mother liquor was dissolved in chloroform, filtered and passed through a polybuffer installation. In addition to the above-mentioned alkaloids, three bases were isolated: base A (pH 7.0, 6.5, R_f 0.15 in chloroform-butanol, ethylacetate (10:2:1)), base D (pH 5.5, 5.0, R_f 0.36 in chloroform-methanol (7:1)), and base V which is a crystalline mixture of two bases (pH 1.0, R_f 0.27 and 0.39 in petroleum ether-chloroform-ethanol (10:1:1)).

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UDC 547.944/1

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RAKHIMOV, D. A., SHARIPOV, M. R., ARIPOV, Kh. N., MALIKOV, V. M., SHAKIROV, T. T., and YUNUSOV, S. Yu., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Academy of Sciences, Uzbek SSR

"Polybuffer Separation of Vinca Erecta Alkaloids"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1970, pp 713-717

Abstract: The complex alkaloid mixture from vinca erecta was separated by alkalinity on a special polybuffer separating unit. The mixture of alkaloids in an organic solvent was passed in sequence through a number of phosphate buffer solutions with different pH values arranged in order of increasing pH. The use of this method results in distribution of the alkaloids into fractions containing 3-6 bases apiece. The following bases were isolated in addition to previously identified alkaloids: ervincidine, apovincamine, (+)-quebrachamine, dl-eburnamine, (-)-1,2-dehydroaspidospermidine and cepsanone. This is the first time that these bases have been derived from this plant. Ten or twelve other unidentified alkaloids were also detected by thin-layer chromatography. The region of passage of some alkaloids into the buffer solutions is established.

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1/2 006 UNCLASSIFIED
TITLE--VINCANINE ADSORPTION PROCESS -U-

PROCESSING DATE--27NOV70

AUTHOR--(02)-ARIPOV, KH.N., SHAKIROV, T.T.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(2), 84-6

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, CATION EXCHANGE RESIN, CHEMICAL
PURIFICATION/(U)KUI CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0006

STEP NO--UR/0291/70/014/002/0084/0086

CIRC ACCESSION NO--AP0137205

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137205

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SERIES OF CATION RESINS WAS EVALUATED AS TO THEIR ADSORPTION EFFICIENCY FOR VINCANINE (I) FROM VINCANINE HCL (II) SOLNS. AND FROM VINCA ERECTA (III) ROOT EXTS. HIGHEST YIELDS OF I WERE OBTAINED IN EXTS. ON A KU 1 CATION RESIN (GRAIN SIZE 0.25-0.50 MM) USING A SOLN. CONC. OF II 0.84 MG-ML AND A FLOW RATE OF 20 ML-MIN. A BATTERY OF 4 ADSORBERS (20 CM DIAM.) PACKED TO HEIGHTS OF 40 CM WITH THE KU 1 RESIN HANDLED SOLNS. CONTG. 0.19 G-L. III AT A THROUGHPUT OF 950 L.-M PRIME2 HR. RESIN SATN. WAS MONITORED COLORIMETRICALLY BY DETG. THE BREAKTHROUGH POINTS. FACILITY: INST.KHIM. RAST. VESHCHSTV, TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 621.578.6

TUNKIN, V.G., USMANOV, T., SHAKIROV, V.A.

"Fifth Harmonic Generation In A Picosecond Pulsed Laser"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), pp 117-118

Abstract: The experimental results are presented of cascade generation of the fifth harmonic of a neodymium laser operating in a regime of self-synchronization of modes. Intensive coherent radiation with a 200 kW power at $\lambda_5 = 0.212$ micron was obtained as a result of a synchronous four-frequency interaction in calcite (CaCO_3) at room temperature. The experimental equipment used contains the following: 1) Picosecond laser; 2) UKS-2 filter; 3) Photodiode and strobo-pulse former; 4) KEP-I crystal; 5) KDP-II crystal; 6) PS-11 filter; 7) Calcite crystal; 8) Quartz crystal; 9) Photomultiplier-39A; 10) Registration scheme; and 11) ISP-22 spectograph. The authors thank S.A. Akheanov and A.S. Chirkin for constant interest in the work, helpful council, and discussion of the results. 2 fig. 5 ref. Received by editors, 21 April 1972.

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USSR

UDC 632.95

MALYUTIN, P. P., RADTSEV, V. S., SAVIN, V. P., SAMONOV, V. D., STONOV, L. D.,
SHAKIROVA, A. M., Ufa Affiliate of the All-Union Scientific Research Institute
of Agents for Plant Protection

"A Herbicidal Preparation"

USSR Author's Certificate No 311594, filed 21 Apr 70, published 19 Nov 71
(from RZh-Khimiya, No 11, Jun 72, Abstract No 11K470)

Translation: In order to intensify herbicidal activity and improve selectivity,
3-carbomethoxyaminophenyl N-(3-methyl phenyl)carbamate is used in a mixture
with benzamidoxycetic acid in ratios by weight from 1:2 to 1:6. In experiments,
the mixtures inhibited the development of wild oat seedlings more actively
than their components used separately.

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USSR

SIMONOV, V. D., ~~SHAKIROVA, A. M.~~, and SAVKOVA, N. Ya.

"Reaction of 3,4-Chloroaniline with Certain Chlorocarboxylic Acids"

Dokl. Neftikhim. Sektsii. Bashkir. Resp. Pravl. Vses. Khim. O-va im. D. I. Mendeleyeva [Works of Petrochemical Section, Vashkir Republic Administration of All-Union Chemical Society imeni D. I. Mendeleyev], Vol 6, 1971, pp 362-364. (Translated from Referativnyy Zhurnal Khimii, No 5, Moscow, 1972, Abstract No 5N675 by G. V. Kuznetsova)

Translation: The reaction of 3,4-Cl₂C₆H₃NH₂ (I) with chlorocarboxylic acids is studied. When equimolar quantities of I and ClCH₂COOH or MeCHCl COOH are boiled in PhMe with azeotropic removal of water for 10 hours, the corresponding anilides were produced: 3,4-Cl₂C₆H₃NHCOCH₂Cl, C₈H₆Cl₃NO, mp 100-1° (iso-C₈H₂₀); and 3,4-Cl₂C₆H₃NHCOCHClMe, C₉H₈Cl₃NO, yield 49.4%, mp 123-4° (iso C₈H₂₀). The anilide is not formed of I and pentachloropentadienic acid under similar conditions, but only the 3,4-dichloroaniline salt of the acid, C₁₁H₆Cl₇NO₂, was produced, yield 73.6%, mp. 101.5-2.5° (benzene). CCl₂=CClCOOH reacts similarly, producing the 3,4-dichloroaniline salt, C₉H₆Cl₅NO₂, yield 34.6%, mp 115-8" (benzene). 3,4-Cl₂C₆H₃N=CHCCl=CClCONHC₆H₃ Cl₂-3,4, C₁₆H₇Cl₃N₂O, is produced, mp 223°. The anilides and salts produced are potential herbicides.

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USSR

UDC 621.317.78

SHAKIRZANOV, F. N.

"Ferrite Power Meters"

Tr. Uralskogo politekhn. in-ta (Works of the Urals Polytechnical Institute),
1970, Collection 183, pp 52-58 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract
No 8A364)

Translation: Nonlinear effects (with the exception of thermal effects) in
ferrites which can be used to measure power in the superhigh frequency range
(eight such effects are presented) are listed in brief. The schematic for the
"absolute" power meter constructed by the compensation principle with applica-
tion of a nonlinear ferrite element is presented (the nature of the nonlinearity
of this element is indifferent). The series schematic of the instantaneous power
meter is investigated. The bibliography has seven entries.

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USSR

UDC 539.376:534.1

IL'GAMOV, M. A., SAKHABUTDINOV, Zh. M., SHAKIR'YANOV, M. M.

"Nonlinear Radial Oscillations of a Cylindrical Shell Filled With a Compressible Liquid"

V sb. Konf. po kolebaniyam mekh. sistem. Tezisy dokl. (Conference on Oscillations of Mechanical Systems. Abstracts of the Reports), Kiev, "Nauk. dumka", 1971, p 44 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V271)

Translation: The paper deals with the problem of forced steady-state oscillations of an ideal compressible liquid contained between two infinitely long circular cylindrical shells. The inner cylinder is a source of harmonic radial perturbations. Finite deformations of a "rubber-like" elastic outer cylinder are considered in the nonresonance case. The equation of motion of the ideal liquid is written in Lagrangian coordinates, which facilitates satisfaction of the contact boundary conditions.

An approximate solution is found by the method of successive iterations as applied to equations of motion of liquid and shell. The effect of various parameters on the oscillatory process is numerically analyzed in the second approximation.

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USSR

UDC 621.317.38

SHAKIRZYANOV, F. N., ANTONETS, YE. P., MIKHAYLOVSKIY, L. K., Moscow "Order of Lenin" Power Engineering Institute"

"A Method of Measuring Microwave Pulse Power"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 23, 1970, Author's Certificate No 274833, Filed 1 Nov 68, p 228

Abstract: This author's certificate introduces a method of measuring microwave pulse power by means of a magnetic detector placed in the channel of the power to be measured, and located in a fixed magnetic field. As a distinguishing feature of the patent, the level of the microwave pulse signal power to be measured is increased by setting the magnitude of the magnetic field equal to its value in the case of additional resonance in a ferrite specimen. The amplitude or frequency of the low-frequency oscillations generated by the magnetic detector is taken as the measure of the microwave power.

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USSR

UDC 621.762.002.5(088.8)

BATIST, A. I., ARTEMIYEV, YE. M., BERG, B. N., SHAKIRZYANOVA, L. G.

"Worm Press for Making Tubular Products from Powders"

USSR Authors' Certificate No 273634, Cl. 49 h, 11; 49i, 16; 31 b³, 3/02,
(B 30 b 9/00, B 22 f 3/00) filed 23 Oct 68, published 14 Sep 70 (from RZh-
Metallurgiya, No 3, Mar 71, Abstract No 3 G474P)

Translation: The worm press contains a frame, charging hopper, drive mechanism, and endless scew with diminishing depth of thread. In order to press bi-metallic tubular products, the worm press is equipped with a detachable tubular jacket, and the worm is made with a longitudinal axial duct which centers the entering core that shapes the hole in the product to be pressed. One illustration.

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USSR

UDC: 681.327.2/.7

SHAKIS, V. V.

"Electrical System for Positioning the Magnetic Head Module of a Computer Memory"

Techn. kibernetika, Tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 36-41 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep 70, Abstract No 9B428)

Translation: This Author's Certificate introduces a functional schematic of the electrical version of a system for positioning the magnetic heads of a magnetic disc memory. The electric motor control laws are established, for implementation of which a semiconductor amplifier-converter controlled by a pulse-duration modulator is selected. The transfer function in the modulated z-transformation is derived for this system. It is possible to use this function to investigate the problems of system stability and quality of the transient processes, considering the parameters of individual system components when the system is built of specific elements. There are three illustrations and a three-entry bibliography.

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1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--BEHAVIOR OF ETHYL ETHER ON PLATINIZED PLATINUM IN SULFURIC ACID
SOLUTIONS -U-
AUTHOR--(02)--BGGANOVSKIY, G.A., SHAKKAK, A.I. 5
COUNTRY OF INFO--USSR
SOURCE--ELEKTRO-KHIMIYA 1970, 6(2), 290
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ETHYL ETHER, PLATINUM ELECTRODE, OXIDATION, CHEMISORPTION,
ELECTROLYTIC OXIDATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0032 STEP NO--UR/0364/70/006/002/0290/0290
CIRC ACCESSION NO--AP0114432
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0114432

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDN. OF ETHER UNDER STEADY STATE CONDITIONS IS RATHER INTENSE. THE AREAS OF OXIDN. ARE IN THE DOUBLE LAYER REGION OF THE POTENTIAL WITH THE POLARIZATION CURVE HAVING A SLOPE OF $d \text{ SUBPHI TAU} - d \text{ LOG I EQUAL } 0.12 \text{ V}$. THE ABSORBED O LAYER IS ACTIVE WITH REGARD TO ETHER. THE RATE OF INTERACTION WITH THE OXIDE FILM IS LOW. FOR ETHER THE FORMATION OF NONREDUCING CHEMISORBED PARTICLES IS CHARACTERISTIC. IF PT IS KEPT FOR 1 HR IN A N H SUB2 SO SUB4 SOLN. SATD. WITH ETHER WITH SUBSEQUENT REMOVAL OF ETHER, MULTIPLE WASHING OF THE ELECTRODE WITH NH SUB2 SO SUB4, PLOTTING OF THE CATHODIC AND ANODIC CURVES OF CHARGING, THE H AREAS OF THE CORRESPONDING CURVES ARE SHORTER THAN IN A SOLN. OF THE BACKGROUND. IT FOLLOWS FROM THE RATIO (QH PRIMER-QH PRIME)A PRIME EQUAL 0.7 THAT THE CHEMISORBED SUBSTANCE OCCUPIES 30PERCENT OF THE TOTAL NO. OF THE H PLACES. THE BLOCKING OF THE SURFACE IS DUE TO UNREDUCED CHEMISORBED HCO PARTICLES. THESE PARTICLES ARE PROBABLY FORMED BY INTERACTION OF WATER AND CH SUB3 TIMES RADICALS CREATED IN THE DESTRUCTIVE DECOMPN. OF ETHER. THUS THE EFFECTS OF DEHYDRATION, HYDRATION, DECOMPN. IN THE C-C BONDS, BLOCKING OF THE SURFACE BY UNREDUCED HCO PARTICLES THAT WERE FOUND IN ALCS. AND HYDROCARBONS ARE ALSO CHARACTERISTIC FOR SUCH STABLE COMPODS. LIKE ETHER. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 613.5+614.377:678.7

LORANSKIY, D. N., and ~~SHAKLEYNA~~, YE. M., Ministry of Health USSR

"Sanitary Control of the Use of Polymer Materials in the Construction of Residential and Public Buildings"

Moscow, Gigyena i Sanitariya, No 1, 1970, pp 75-78

Abstract: Growing awareness of the health dangers posed by the release of injurious volatile substances from various kinds of paints and varnishes, linoleums, plastics, heat and sound insulation materials, and other products made from polymers prompted the Ministry of Health USSR, together with other government agencies, to take a number of steps in 1964 to broaden toxicological research and set standards for the use of these products. Perhaps the most important action was the establishment of the All-Union Research Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics. The purpose of this institute is to engage in original research and to coordinate and guide the activities of relevant organizations throughout the country. Over 150 different products were evaluated by 1968, and the results were incorporated in the official List No 743-68 of Polymer Materials That May or May Not Be Used in the Construction of Residential and Public Buildings (issued in 1968).

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USSR

UDC 539.376+532.135

POZDEYEV, A. A., SHAKNROV, N. V.

"A Version of Elastic Recovery of Calendered Viscous-Elastic Materials"

Sb. nauch. tr. Perm. politekhn. in-t (Collection of Scientific Works of Perm' Polytechnic Institute), 1972, No 112, pp 62-67 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6V501)

Translation: A study was made of the process of plane strain during rolling of an incompressible viscous-elastic material between rigid rolls turning with a constant angular velocity. The equations of the nonlinear hereditary theory of Rabotnov

$$\sigma_{ij} = -\sigma\delta_{ij} + 2\frac{T}{H}\xi_{ij}$$

$$T = \phi(H) + \int_0^t \phi(H)R(t-\tau)d\tau$$

are used as the defining equations, where σ_{ij} is the stress tensor, ξ_{ij} is the strain rate tensor, T and H are the intensities of the shear and the deformation rates. The kernel of the integral equation $R(t)$ was selected in the form of $1/2$

USSR

UDC 620.17

GORBACH, S. S., MARKOVSKIY, V. YU., PAKHNEV, A. V., and SHAKOL'SKAYA, M. P.

"Influence of Various Factors Upon Photoelastic Coefficients During the Measurement of Stresses in Cubic Single-Crystals by the Polarization-Optical Method"

Tallin, VII Vses. Kong. po Polayarizatsionno-Optich. Metodu Issled. Napryazheniy. 4 -- Sbornik (Seventh All-Union Conference on the Polarization-Optical Method of Stress Research. 4 -- Collection of Works), 1971, pp 141-144 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1628 by V. D. Kopytov)

Translation: A report is given on the results of an experimental investigation of the influence of the temperature, wavelength, and impurities upon the value of the photoelastic coefficients of alkaline-halide crystals of NaCl, KCl, KBr, KI and RbY. It turned out that the photoelastic coefficients increase with an increase of temperature. Only for NaCl crystals was such an effect not observed. Increasing the wavelength also first brings about an increase of the optical coefficient, and then, starting with certain wavelength values (on the order of 577 nanometers) it begins to decrease. Here the wavelength interval at which a sharp decrease of the optical coefficients begins, is shifted toward high temperature. Increasing the percent content of

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AA0101187

UR 0482

S
Soviet Inventions Illustrated, Section I Chemical, Derwent,

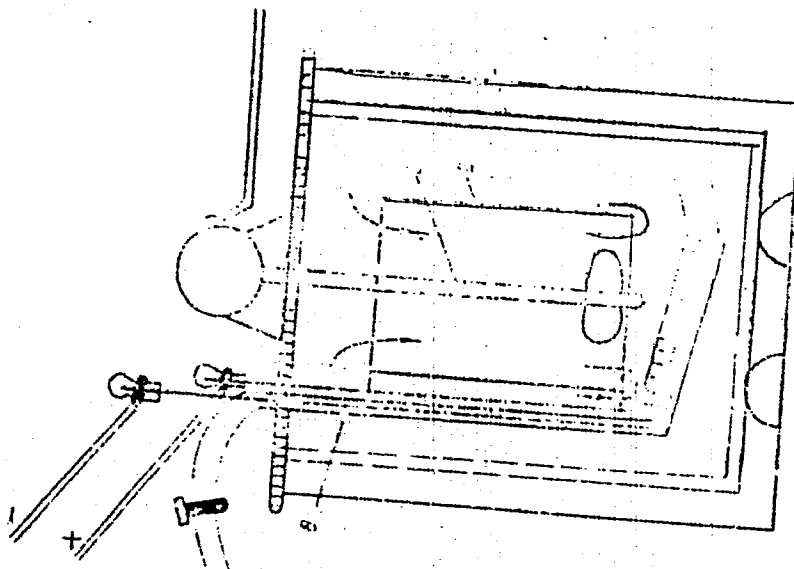
242833 MICROORGANISM CULTIVATING APPARATUS
comprises tank 1, diffuser 2, agitator 3,
and additional porous diffuser 4. Electrodes 5 &
6 are separated by screen 7, with electrode 5
causing hydrogen formation by hydrolysis with
evacuation by tube 8. The oxygen separated by
electrode 6 is lifted in bubbles together with
adhering microorganisms. The feed composition
is chosen so that cation and anion balance as
well the pH of the medium are not altered by the
electrolytic dissociation.

24.10.67. as 1192399/28-13, KOTELEV, V.V. SHAKIN.
L.A. Microbiology Sect. Acad. Sci. Moldavian SSR.
(22.9.69) Bul. 16/5.5.69. Class 6a, Int. Cl. C 12b.

Otdel Mikrobiologii AN Moldavskoy SSR

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19850855
6 6

AA0101187



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19850856

MT

1/2 013
UNCLASSIFIED
TITLE--AROMATIC COMPOUNDS WITH HYDRAZO AND AZO GROUPS. II. NITRATION OF
PENTANITROAZOBENZENES -U-
AUTHOR--(03)--SHARNIN, G.P., BUZYKIN, B.I., SHAKUROVA, K.KH.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1036-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AROMATIC_NITRO COMPOUND, ORGANIC AZO COMPOUND, NITROBENZENE,
NITRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--3006/1281
CIRC ACCESSION NO--AP0134955
STEP NO--UR/0366/70/006/005/1036/1038
UNCLASSIFIED

2/2 013
CIRC ACCESSION NO--AP0134955 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NITRATION OF
2,2PRIME,4,6,6PRIME,PENTANITROAZOBENZENE WITH 98PERCENT HNO SUB3 OR HNO
SUB3 -H SUB2 SO SUB4 MIXTS. GAVE 2,2PRIME,4,4PRIME,6,6PRIME,
HEXANITROAZOBENZENE (I). SIMILARLY,
5,5PRIME,DIMETHYL,2,2PRIME,4,4PRIME,6,PENTANITROAZOBENZENE WAS NITRATED
TO THE 5,5PRIME,DI,ME DERIV. OF I. THE ATTEMPTED NITRATION OF
2,2PRIME,4,4PRIME,6,PENTANITROAZOBENZENE (II) OR ITS DERIVS. CONTG.
ELECTRON ACCEPTING SUBSTITUENTS, WITH 98PERCENT. HNO SUB3 OR HNO SUB3
-H SUB2 SO SUB4 MIXT. WAS NOT SUCCESSFUL. THE NITRATING MIXTS. CONTG.
FREE SO SUB3 DECOMPO. II AND ITS DERIVS. FACILITY: KAZAN.
KHIM.-TEKHNOL. INST. IM. KIROVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 666.972.125:666.65-492.3

TSIRIN, K. SH., Candidate of Economic Sciences (VNIIESM) [Expansion unknown],
and SHAL', B. V., Engineer (Scientific Research Institute of Filler Clays-
NIikeramzit)

"Effective Additives for Improving the Quality of Filler Clay (Keramzit)"
Moscow, Stroitel'nyye Materialy, No 1, Jan 74, pp 29-30

Abstract: New types of organic and organo-mineral additives are being developed to improve the quality of filler clays for cement. Clay filler materials were studied from four different raw material deposits: Kryazhskoye (Kuybyshevskaya Oblast), Mokrushinskoye (Novosibirskaya Oblast), Puzyrevskoye (Krasnoyarskiy Kray), and Kazennaya Zaimka (Bernal) using different additives (oils, coals, emulsions, etc.). Complex organic and organo-iron suspensions can be made at a filler clay enterprise. At NIikeramzit the basic system and working drawing have been developed for a unit that can be used for the preparation and introduction of emulsion and complex suspension correction additives in the clay raw material. This unit involves standard equipment and is simple to install and maintain. The economic potential from the use of the most effective additives amounts to (in rubles per cubic meter of gravel): 2.51--Kryazhskoye, 2.92--Mokrushikhinskoye, 7.45--Puzyrevskoye, and 6.23--Kazennaya Zaimka. One figure, two tables.

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172 010
UNCLASSIFIED
TITLE--CELLULAR MEMBRANE FORMATION AND POSSIBILITY OF CONTROLLING IT FOR
PREVENTION OF WHEAT LODGING -U-
AUTHOR--(03)--LYASKOVSKIY, M.I., KALININ, F.L., SHALABAI, M.S.
COUNTRY OF INFO--USSR
SOURCE--FIZIOL. BIKHIM. KULT. RAST. 1970, 2(2), 181-7
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--WHEAT, CELL PHYSIOLOGY, PLANT PHYSIOLOGY, CHLORINATED ORGANIC
COMPOUND, GIBBERELIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----F070/605001/E07 STEP NO--UR/0654/70/C02/002/0181/0187
CIRC ACCESSION NO--AP0139375
UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AP0139375
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT. CHLOROCHOLINE CHLORIDE (CCC)
INHIBITED THE BIOSYNTHESIS OF THE BASIC COMPONENTS OF THE CELL WALL OF
THE WINTER WHEAT MIRONOWSKAYA 808. THE STEM DEVELOPED BETTER AND THE
RESISTANCE TO LODGING INCREASED. GIBBERELIN APPLIED WITH INCREASED N
SUPPLY DECREASED THE AMT. OF PLASTIC SUBSTANCES IN THE GROWING TISSUE,
INHIBITED THE FORMATION OF THE CELL WALL, AND REDUCED THE DEVELOPMENT OF
STEM TISSUE, RESULTING IN DECREASED RESISTANCE TO LODGING.
FACILITY: INST. PLANT PHYSIOL., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 539.3:534.1

SACHENKOV, A. V. and SHALABANOV, A. K.

"An Investigation of the Free Oscillations of Segmented Plates and Conical Panels by the Theoretical-Experimental Method"

Kazan', Issled. po teorii plastin i obolochek. No 9 (Investigations in the Theory of Plates and Shells, No 9, Collection of Works), Kazan' University, 1972, pp 339-346 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4V317 by E. I. Sokolov)

Translation: The problem of the free oscillation of plates in the form of ring segments and of conical, truncated panels under conditions of free rest on the contour is solved by the theoretical-experimental method. Structural formulae for the frequency of oscillation of plates and panels are obtained on the basis of approximate solutions of the corresponding equations of motion. Moreover, for segmented plates with the parameter $t = \ln(r_1/r_0) \leq 2$, where r_1 and r_0 are the radii of the ring-segmented plates, the problem leads to a problem of the free oscillations of theoretical rectangular plates, whose general expression for the oscillation frequency is known. In the case of conical panels the problem is divided in two: a problem of the oscillations of segmented plates, the profile of which corresponds to the projection of the conical panel on a

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USSR

SACHENKOV, A. V. and SHALABANOV, A. K., Issled. po teorii plastin i obolochek.
No 9, 1972, pp 339-346

plane perpendicular to the height of the cone, and a problem on the oscillations of a beam of variable cross section. Summarizing the solution for the frequencies of free oscillations of these two problems and introducing a correcting function, the authors obtained a structural formula for the original conical panels. The value of the correcting function in the formulas for the frequencies of oscillation of segmented plates and conical panels is obtained experimentally. (10 bibliographic entries)

2/2

USSR

SHALABIN, G. V., EYSSNER, YU. N.

UDC 577.4

"Dynamic PERT Model of Optimal Distribution of Lumbering Enterprises"

V sb. Primeneniye mat. v ekon. (Application of Mathematics and Economics --
collection of works), Vyp. 7, Leningrad, Leningrad University, 1972, pp 120-
130 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V542)

No abstract

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- 55 -

USSR

SHALABIN, G. V., PERVOZVANSKAYA, T. N.

UDC 577.4

"Some Problems of Optimal Planning of the Activity of Forestry Management and Logging Enterprises"

V sb. Primeneniye mat. v ekon. (Application of Mathematics in Economics -- collection of works), Vyp. 7, Leningrad, Leningrad University, 1972, pp 98-107 (from RZh-Kibernetika, No 7, Jul 72, Abstract 7V549)

No abstract

1/1

- 58 -

USSR

SHALABUTOV, YU.K.

UDC 621.385.032.22:537.52

"Concerning The Breakdown Mechanism Of Aluminum Oxide"

Tr. Leningr. politekhn. in-t (Works Of The Leningrad Polytechnical Institute),
1971, No 325, pp 62-65 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72,
Abstract No 2A15)

Translation: The paper studies the phenomena at the contact of a point--
contact metal spike [ostriye] with an aluminum coating, with high temperature and
strong electrical fields. The mechanism is considered of the phenomena which
occur during breakdown of aluminum oxide. The electrical strength in the low
temperature region is determined by the properties of the surface barrier
layers, with $T \geq 1500^\circ \text{K}$ -- an avalanche electron process because of ioniz-
ation of the impurities and electrolytic phenomena, and the lifetime of the
specimens is also connected with the latter. The difference in the results
for close and nonclose metal contacts with a specimen is caused in the first
case by formation of a barrier layer which disappears at $T \approx 1500^\circ \text{K}$. 1 ill.
10 ref. Summary.
1/1

1/2 034
UNCLASSIFIED
TITLE--PHENOMENON OF THE CHARGE EXCHANGE OF IONS AND ITS ROL. IN SOME
ELECTRON PROCESSES IN SOLIDS -U-
AUTHOR--SHALABUTOV, YU.K.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(5), 993-4
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--IONIC CRYSTAL, PHYSICAL DIFFUSION, ACTIVATION ENERGY, CHARGE
EXCHANGE, CRYSTAL LATTICE DEFECT, SEMICONDUCTOR CRYSTAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0884
CIRC ACCESSION NO--AP0131471
STEP NO--UR/0449/70/004/005/0993/0994
UNCLASSIFIED

2/2 034

CIRC ACCESSION NO--AP0131471
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. IN SUBSTANCES WITH AN ACTIVATION ENERGY FOR DIFFUSION, w , SMALLER THAN THE WIDTH OF THE ENERGY GAP, E_{SUBO} , THE THERMAL AND (OR) ELECTROMAGNETIC ENERGY CAN BE USED FOR A CHARGE EXCHANGE BETWEEN LATTICE IONS, CREATING A DEFECT, WHICH CAN BE MOBILE IN THE NEW ENERGY SITUATION. AN ANAL. OF A SERIES OF IONIC AND SEMICONDUCTING CRYSTALS WITH A LARGE IONIC CONTRIBUTION (MAINLY OXIDES) SUPPORTS THIS NEW MODEL FOR THE DIFFUSION MECHANISM AND THE IONIC COND. AND FOR OTHER OPTICAL AND ELEC. PHENOMENA CONNECTED WITH THEM.
FACILITY: LENINGRAD. POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC535.34.538.12

IM TKHEK-DE, SAPRYKIN, E. G., and SHALAGIN, A. M.

"Some Anomalies in the Absorption of a Light Wave by a Medium Placed in a Magnetic Field"

Leningrad, Optika i Spektroskopiya, Aug 73, pp 202-204

Abstract: An experimental discovery has been made of the presence of an anomalous relationship between the absorption coefficient of laser radiation (0.6328 microns) by excited neon atoms at the $3s_2-2p_4$ transition, and the value of a transverse magnetic field. An investigation was made of the absorption of linearly and circularly polarized monochromatic radiation at different gas pressures, discharge currents, and radiation intensities. It was revealed that on the curve of the relationship of the absorption coefficient to the value of the magnetic field there appears an acute "peak" structure, not predicted by the ordinary theory, with the center at the zero of the magnetic field. This "peak" has a relative amplitude of about 10^{-4} and a width much smaller than the Doppler width, and occurs at arbitrarily small radiation intensities. Its width and amplitude parameters in relation to the value of total absorption for linearly and circularly polarized waves are approximately the same. An investigation was made of the parameters of the "peak" to the pressure, the discharge current, the intensity and polarization of the transmitted radiation. 2 figures. 8 references.

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- 92 -

USSR

UDC: None

IM TKHEK-DE, RAUTIAN, S. G., SAPRYKIN, E. G., SMIRNOV, G. I., and
SHALAGIN, A. M.

"Effect of Laser Field Polarization on Nonlinear Interference
Effects"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62,
No 5, 1972, pp 1661-1665

Abstract: Experiments are described for investigating the spectral dependence of the absorption coefficient of a weak monochromatic field on the $3s_2-2p_4$ transition of neon in a strong field interacting with the transition when both fields are in the same direction. The observed effect is the dependence of the form and width of the absorption line for the weak field on the polarization of the fields. A frequency-stabilized He-Ne laser with pressure-selected modes of operation is used as the source of the strong field, its radiation being modulated by a mechanical interrupter. Further details of this rather complicated equipment are given together with a diagram, and the results of the experiment are interpreted. It is noted that the effect observed had been predicted by A. Dienes (Phys. Rev., 174, 400, 414, 1968). The authors are associated with the Semiconductor Physics Institute, Siberian Division of the USSR Academy of Sciences.

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Acc. Nr: **AP0043695**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 962-974

**SATURATION EFFECTS FOR LONG-LIVED SYSTEMS
IN SPATIALLY RESTRICTED FIELDS**

S. G. Rautian, A. M. Shalagin

Some regularities of emission by long-lived systems in spatially restricted fields are considered. It is demonstrated, in particular, that for weak saturation the width of the Lamb «dip» is determined by the natural line width Γ . The effect of recoil during photon emission and absorption on the structure of the «dip» is considered.

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REEL/FRAME
19770099

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1/2 008
UNCLASSIFIED
TITLE--COMPOSITION OF ALKALOIDS PRODUCED BY CLAVICEPS PURPUREA TUL -U-
AUTHOR--(03)-SHALAGINA, A.I., BANKOVSKAYA, A.M., OSTROVSKIY, N.I.
PROCESSING DATE--13NOV70
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 67-70
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ALKALOID, CHEMICAL COMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PRUXY REEL/FAME--1990/1412
CIRC ACCESSION NO--AP0109474
STEP NO--UR/0220/70/039/001/0067/0070
UNCLASSIFIED

008
CIRC ACCESSION NO--AP0109474 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DATA ON ALKALOID COMPOSITION
IN SCLEROTIUM AND MYCELIUM OF THE SAPROPHYTIC CULTURE ARE PRESENTED FOR
22 STRAINS OF CLAVICEPS PURPUREA TUL. UNDER EXPERIMENTAL CONDITIONS
THE STRAINS WITH CERTAIN ALKALOIDS IN SCLEROTIA SOMETIMES DO NOT
CONTAIN THEM IN MYCELIUM AFTER GROWTH ON A DEFINED MEDIUM. HENCE,
SEVERAL STRAINS OF CLAVICEPS PURPUREA DO NOT EXHIBIT CORRELATION IN
ALKALOID PRODUCTION IN PARASITIC AND SAPROPHYTIC CULTURES.

PROCESSING DATE--13NOV70

UNCLASSIFIED

USSR

GORYACHIKH, A. A., TAKIBAYEV, Zh. S., TITOVA, N. S., and SHALAGINA, Ye. v.,
Kazakh State University

"Angular Distribution of Star Tracks Formed by π -Mesons Having an Energy of
60 GeV on Heavy Nuclei of a Photoemulsion"

Moscow, Yadernaya Fizika, Vol 13, No 6, Jun 71, pp 1267-1269

Abstract: The authors study the angular distributions of thin, gray, and black tracks in spallations formed by Ag and Br π -mesons having an energy of 60 GeV. The distributions obtained are compared with the angular distributions of star tracks formed by protons having an energy of 2.26 and 19.5 GeV. The investigation involved 170 stars formed by the interaction with heavy nuclei of an ion photoemulsion having an energy of 60 GeV. With the aid of schematics the authors depict the angular distribution of the thin and gray tracks of these spallations. They find that the angular characteristics of the gray tracks are independent of energy and nature of the primary particle. The research is supported by equations as well as the tables and figures. The article contains two tables, two figures, and a bibliography of two titles.

1/1

Electrochemistry

USSR

UDC 66.094.1:546.791

VLASOV, V. G., PIS'MENKO, V. T., ULYASHEV, S. P., SHALAGINOV, V. N., and
BEKETOV, A. R.

"Electroconductivity of Uranium β -Dioxide Modified With Admixtures of
MgO, SrO, and Nb₂O₅"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 1, Jan 73, pp 36-40

Abstract: Specific electroconductivity expressed as a function of temperature for the pure uranium β -dioxide as well as one with admixtures of MgO, SrO, and Nb₂O₅ show three discrete segments: low temperature straight line segment of contaminated conductivity, the middle segment of proper conductivity and a high temperature segment with probably complete conductivity. Presence of impurities alters not only the absolute values of electroconductivity of uranium β -dioxide, but also the transition temperatures of the above three segments. This is due to concentration changes and mobility of basic current carriers. The experimentally established functions of electroconductivity are explained by the defects generated by the admixtures when they are dissolved in the lattice of U₄O₉.

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USSR

UDC 661.2.08+631.325.5

KASPEROVICH, A. N., SHALAGINOV, YU. V., Novosibirsk

"A Principle of Constructing a High-Speed Analog-to-Digital Conversion System with Adaptive Digitalization"

Novosibirsk, Avtometriya, No 2, 1972, pp 10-17

Abstract: An algorithm was described previously [T. V. Donetskaya, et al., Kibernetika v izmeritel'noy tekhnike. Materialy konferentsii TsNIIETI, Moscow, 1968] for constructing a high-speed data input device for data on a physical process [an analog-to-digital converter] with adaptive digitalization. The algorithm provided for reading each subsequent digit at the time of satisfaction of the condition

$$\delta_d \approx (\Delta F'(t)\Delta t)/8,$$

where δ_d is the allowable error of linear interpolation of the process in the Δt interval; $\Delta F'(t)$ is the increment of the first derivative of the investigated process in the Δt interval; Δt is the duration of the adaptive digitalization interval. It is possible to construct an algorithm similar to that described as applied to the processes having a sign-variable second derivative and also an instrument executing this algorithm in digital form. The principle

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USSR

KASPEROVICH, A. N., et al., *Avtometriya*, No 2, 1972, pp 10-17

of constructing such a digital device based on using a tracking analog-to-digital converter with linear extrapolation is described, and study is made of the basic requirements on it and possible technical characteristics. The block diagram of the device is presented, and its operation is described. Theoretical investigation and preliminary simulation shows that for the modern state of the art in Soviet electronics it is possible to expect the following system characteristics: speed in the tracking mode $(5-10) \cdot 10^6$ conversions per second; number of binary bits 8-9; conversion error $\pm 0.5\% \pm 1$ quantum. Adaptive digitalization can be realized for the given error of 1, 2, 4%; the compression efficiency with respect to the preliminary estimate corresponds to the previously obtained efficiency. The described principle of constructing the system insures conversion of analog signals to digital form and exclusion of part of the redundant information. A comparatively insignificant volume of equipment is achieved by the fact that the calculations required for the analog-to-digital conversion and adaptive digitalization are executed by the same units.

2/2

1/2 034

TITLE--STUDY OF THE UPTAKE OF AIR BORNE PRIME239 PU BY THE HUMAN ORGANISM
-U- UNCLASSIFIED PROCESSING DATE--16OCT70

AUTHOR--(05)--SMORODINTSEVA, G.I., TARASOV, S.I., ORESHINA, A.F., SHALAK, N.I., YASKOVA, V.Z.
COUNTRY OF INFO--USSR

SOURCE--(AEC-TR-7128, PP 235-45) TRANSLATION OF REPORT A-AC-82-G-L-1301
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, ATMOSPHERIC SCIENCES
TOPIC TAGS--PLUTONIUM ISOTOPE, RADIOACTIVITY MEASUREMENT, ATMOSPHERIC
RADIOACTIVITY, LUNG, RADIATION DOSAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/1769

STEP NO--UR/0000/70/000/000/0235/0245

CIRC ACCESSION NO--AT0054607

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 034

CIRC ACCESSION NO--AT0054607

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. DATA ARE PRESENTED FOR PRIME239 PU CONCENTRATIONS IN ATMOSPHERIC AIR, HUMAN LUNGS AND LYMPH NODES DURING THE PERIOD 1964 TO 1966. METHODS OF INVESTIGATION AND CALCULATION ARE DESCRIBED. IT WAS FOUND THAT THE LEVEL OF PRIME239 PU IN ATMOSPHERIC AIR WAS FOUR ORDERS LOWER THAN THE MPD FOR THE WHOLE POPULATION. PLUTONIUM 239 DOSES IN THE LUNGS WERE 3000 TIMES LOWER THAN THE MPD FOR THE LUNGS AND 40 TIMES LOWER THAN THE DOSE RESULTING FROM PRIME210 PO. THE DATA SERVED TO SOME EXTENT AS CONFIRMATION OF THE EXPONENTIAL MODEL ADOPTED BY THE ICRP FOR CALCULATING THE PRIME239 PU CONTENT OF HUMAN LUNGS FROM ITS CONCENTRATION IN THE A FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIYU ATOMNOI ENERGI SSSR, MOSCOW.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INFLUENCE OF VARIOUS CARBON SOURCES ON THE FORMATION OF
CELLULOLYTIC ENZYMES BY TRICHODERMA SPECIES 18 SUBS -U-
AUTHOR-(03)-FENIKSOVA, R.V., ULEZLO, I.V., SHALAMBERIDZE, N.G.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(3), 689-92

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FUNGUS, CONTINUOUS CULTURE, CULTURE MEDIUM, ENZYME,
BIOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1967

STEP NO--UR/0251/70/057/003/0689/0692

CIRC ACCESSION NO--AP0137146

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137146
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CULTURING TRICHODERMA 18 SUBS ON A
MIXT. OF 2PERCENT BEET JUICE AND 2PERCENT WHEAT BUTTS RESULTED IN GOOD
PRODUCTION OF CELLULASE. LESS EFFECTIVE WAS A MIXT. OF WHEAT BUTTS AND
SUNFLOWER HUSKS. COTTON, PAPER, GLUCOSE, LACTOSE, AND STARCH WERE POOR
STIMULATORS OF CELLULASE PRODUCTION. FACILITY: INST. BIOKHM.
IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED
TITLE--EFFECT OF ATMOSPHERIC POLLUTION WITH SULPHURIC GAS AND NITROGEN
DIOXIDE ON THE HEALTH AND PHYSICAL DEVELOPMENT OF CHILDREN -U-
AUTHOR--SHALAMBERIDZE, C.P.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 2, PP 10-14

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND., CIVIL AND
MARINE ENGR
TOPIC TAGS--AIR POLLUTION, PEDIATRICS, NITROGEN FERTILIZER, NITROGEN
OXIDE, CAPROLACTAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1977/C611

STEP, NC--LR/C24C/70/DC0/002/C010/C014

CIRC ACCESSION NO--APCC44130

UNCLASSIFIED

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Acc. Nr: **AP0044130**

Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 10-14

EFFECT OF ATMOSPHERIC POLLUTION WITH SULPHUROUS
GAS AND NITROGEN DIOXIDE ON THE HEALTH
AND PHYSICAL DEVELOPMENT OF CHILDREN

O. P. Shalamberidze

The paper contains data on the state of the atmosphere in the vicinity of a chemical plant producing nitrogen mineral fertilizers and kaprolaktam and that on the effect of industrial discharges, containing mainly sulphurous gas and nitrogen dioxide, on certain biochemical reactions of the body, the state of health and the physical development of children.

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19770611

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USSR

UDC 681.325.53

RAISOV, O. A., VASIL'YEV, V. M., GASHCHAK, P. S., SHALAMOV, G. P.

"A Device for Converting Binary-Decimal Numbers to Binary"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, 1970, p 97, patent No 260962, filed 23 Dec 68

Abstract: This Author's Certificate introduces a device for converting binary-decimal numbers to binary. The unit contains a binary-decimal number register, a four-digit tetrad memory register, a tetrad counter, a memory register for results, a pulse distributor, delay lines, rectifiers, a single-digit adder, and a control circuit. As a distinguishing feature of the patent, the circuit is simplified and reliability is improved by connecting the inputs of the four-digit tetrad memory register to the outputs of the binary-decimal number register, tetrad counter, and pulse distributor, while the output of this register is connected to a rectifier which is tied at the output to one of the adder inputs to which the output of the memory register for the result is connected through another rectifier and a delay line. The memory register output is also connected to a third rectifier whose output is connected to the second input of the adder,

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USSR

UDC 681.325.53

RAISOV, O. A., et al., Moscow, Otkrytiya, Izobreteniya, Promyshlennyye
Obraztsy, Tovarnyye Znaki, No 4, 1970, p 97. patent No 260962,
filed 23 Dec 68

this input also being connected to the output of the memory register
for the result through a fourth rectifier and delay lines. The
adder outputs are connected to the inputs of the memory register for
the result which is connected by its inputs to the distributor out-
puts. The control circuit is connected to the inputs of the dis-
tributer, rectifiers, and tetrad counter.

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UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--DYEING OF PROTEIN AND POLYAMIDE FIBERS -U-

AUTHOR--(04)-GELLER, B.E., YERESHCHENKO, A.G., STEPANTSOVA, N.P.,
SHALAMOVA, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,064

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, 1970 47

DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DYE, PROTEIN, POLYAMIDE RESIN, SYNTHETIC FIBER, CHEMICAL
PATENT, POTASSIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3007/0859

STEP NO--UR/0482/70/000/000/0000/0000

IRC ACCESSION NO--AA0136293

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136293

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. PROTEIN AND POLYAMIDE FIBERS ARE
DYED WITH AMINO CONTG. ACIDS AND BASIC DYES. AFTER DYEING, THE
COLORATION IS STRENGTHENED AND STABILIZED BY TREATMENT IN A REDOX
MEDIUM, I.E. A SOLN. CONTG. K PERSULFATE AND K METABISULFITE.

UNCLASSIFIED

USSR

UDC: 539.3:534.1

SHALASHILIN, V. I., KULAKOV, N. A., KUZNETSOV, Ye. B., YEFANOV, V. V.

"Concerning Some Peculiarities of the Behavior of Elastic Systems With Cracking Under the Effect of Dynamic Loads"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 237, pp 3-24 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7V267)

Translation: Solutions are found for problems on determination of critical loads for a Mises girder and a mildly sloping elastic arch under various types of dynamic loading. In this connection, the Mises girder is treated as a system with one degree of freedom, and the arch is treated as a system with two degrees of freedom. The critical load is taken as that external force which puts the system into motion such that it reaches deflections corresponding to an unstable trajectory on the phase plane at zero velocity. On this basis, the value of the critical load P_{cr} is determined from the condition of equality between the work of external forces and the potential energy of deformation of the system. A graphic method is used to find P_{cr} . Numerical integration of the equation of motion confirmed the admissibility of the proposed approach to solution of problems of this kind. V. B. Silkin.

1/1

- 27 -

USSR

UDC 911.3.616.988.43

SHALASHOV, L. V.

"The Role of Convalescing Cattle in the Epizootiology of Foot-and-Mouth Disease"

Nauch. tr. Omsk. vet. in-t (Scientific Works of the Omsk Veterinary Institute), 1970, 27, No 2, 40 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.101)

Translation: It was established that cattle that had already had food-and-mouth disease could still contaminate healthy cattle even a year or more after sanitation.

1/1

USSR

VDC 614.892

SHALASHOV, N. Ya., Institute of Labor Hygiene and Occupational Diseases, Gor'kiy

"Clinical and Physiological Evaluation of Several Modern Antinoise Devices"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1970, pp 46-47

Abstract: Audiometric tests were given to 50 persons (16 normal and 34 suffering from ear disorders) to determine the value of four means of individual protection against noise: the earmuffs VTsNIIOT-2, PN-2K, an earplug manufactured by the Metallicheskaya Igrushka Plant, and another earplug ShN-1 GIGT, developed by the Gorky Research Institute of Labor Hygiene and Occupational Diseases. The VTs NIIOT-2 earmuff and the ShN-1 GIGT earplug were most effective when worn by persons with normal hearing. None of the devices provided significant protection for those suffering from ear disorders.

1/1

Numerical Analysis

USSR

UDC: 517.512.6

SHALASHOVA, L. Ya.

"Average Approximation of Functions Specified for a Finite Interval"

Novosibirsk, Sibirskiy Matematicheskiy Zhurnal, vol 13, No 3, 1972, pp 679-687

Abstract: The purpose of this paper is to generalize the following theorem: For each specified u of the function $f(x)$ limited to the interval $[-1,1]$, for any natural r and $n \geq r - 1$, one can find an algebraic polynomial $P_n(x)$ of degree no higher than n such that

$$|f(x) - P_n(x)| \leq A_r \omega_r(f; (1 - x^2)^{1/2}/n + 1/n^2),$$

where A_r is a constant depending only on r , and $\omega_r(f;h)$ is the continuity modulus of order r with step h for the function $f(x)$ in the interval $[-1,1]$; i.e.,

1/1

$$\omega_r(f;h) = \sup_{0 \leq t \leq h} \sup_x \left| \sum_{j=0}^r (-1)^j \binom{r}{j} f(x + jt) \right|.$$

172 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF ALIPHATIC AMINO ACIDS FROM THIOPHENE DERIVATIVES. XII.
PREPARATION OF 2,OXOIMIDAZOLIDINE DERIVATIVES FROM DIAMINO-MONOCARBOXYLIC
AUTHOR--(04)-FABRICHNYY, B.P., SHALAVINA, I.F., KOSTROVA, S.M., GOLOFARB,
YA.L.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1091-100
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, AMINO ACID DERIVATIVE, THIOPHENE, LACTAM,
NITRATION, CHLORINATED ORGANIC COMPOUND, UREA, SAPONIFICATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1350 STEP NO--UR/0366/70/006/005/1091/1100
CIRC ACCESSION NO--AP0135024
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135024

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. NITRATION OF 5, (5, CHLORO, 3, AMINO, 2, THIENYL) VALERIC ACID DELTA-LACTAM (I) WITH KNO SUB3 IN OLEUM NITRATED THE THIOPHENE RING IN THE 4, POSITION; HYDROGENOLYSIS OF THE PRODUCT OVER NI GAVE 7, 8, DIAMINONONANOIC ACID ZETA-LACTAM. SAPON. OF THIS GAVE MECH(NH SUB2 .HCL)CH(NH SUB2 .HCL)CH SUB2) SUB5 CO SUB2 H. REACTION OF THIS WITH UREA IN NA SUB2 CO SUB3 SOLN. GAVE 4, (5, METHYLIMIDAZOL, 2, ON, 4, YL) CAPROIC ACID. SIMILARLY, 5, (5, (R-SUBSTITUTED), IMIDAZOL, 2, ON, 4, YL) CAPROIC ACIDS (R IS ME, ET, PR, BU, AMYL, ISOCARYL, OR N-HEPTYL) WERE PREPD. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr:

AP0046687

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR 0185

A70-23192 # Mobility increase of atoms in metal systems during the irradiation processes (Zbil'shennia rukhomosti atomiv u metalievikh sistemakh u protsesi oprominiuvannia). I. Ia. Dekhtiar and A. M. Shalayev (Akademiia Nauk Ukrain's'koi RSR, Institut Metalofiziki, Kiev, Ukrainian SSR). *Ukrains'kii Fizichnii Zhurnal*, vol. 15, Jan. 1970, p. 76-79. 20 refs. In Ukrainian.

Review of the current knowledge concerning the diffusion theory and the effect of an irradiation on the diffusion processes. It is suggested that the change in the energy states of electrons during the irradiation enhances the diffusion mobility of atoms. Z.W.

A. J

REEL/FRAME
19782003

USSR

UDC 537.533.2+537.534

SHALAYEV, A.M., and PILIPENKO, V. V., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Effect of Visible Light on Exoelectron Emission"

Kiev, Metallofizika, No 40, 1972, pp 73-78

Abstract: Time relationships for the exoemission of aluminum at varying stimulated light intensity were obtained as well as time and temperature emission characteristics of these same samples in relation to the conditions of illumination during exposure of the samples prior to measurement after mechanical excitation. Analysis of the experimental data makes it possible to hypothesize that light, except for photoemission, causes coverage of surface local levels and also stimulates the occurrence of relaxation phenomena at the surface. The assumption was expounded that processes of adsorption and oxidation lead to slowing the rate of surface coverage by electrons of the destructive local levels. 3 figures, 1 table, 16 bibliographic references.

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Nuclear Science and Technology

USSR

UDC 539.219.3

SHALAYEV, A. M.

"Radiation-Stimulated Diffusion in Metals"

Radiatsionnostimulirovannaya Diffuziya v Metallakh [English Version Above],
Moscow, Atomizdat Press, 1972, 148 pages.

Translation of Annotation: The appearance of nuclear power stimulated the development of a new branch of solid-state physics -- the physics of radiation damage and its practical application -- atomic materials science.

Many theoretical and experimental works in the area of radiation materials science have lead to the conclusion that most processes occurring in metals and alloys under the influence of ionizing radiation depend strongly on changes in the diffusion mobility of the atoms of materials. This change in the mobility of atoms is observed both during bombardment and after bombardment as a result of the irreversible changes which occur in the structure of the metal materials. The interest in this problem, indicated by the works which have appeared in this area during the past 5 to 6 years, is not suprising. The present book summarizes the theoretical and experimental studies in the area of radiation-induced diffusion, and makes certain assumption concerning the nature of the formation of radiation defects and the mechanisms of increasing mobility. The book

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USSR

SHALAYEV, A. M., Radiatsionnostimulirovannaya Diffuziya v Metallakh, Moscow, Atomizdat Press, 1972, 148 pages.

makes a first attempt at analysis of processes of radiation-stimulated diffusion from the point of view of the interaction of radiation with the electron structure of the material.

The book may be useful for students in the physical and technical departments of universities and scientific workers and engineers working in the area of nuclear materials science. 33 Figures; 16 Tables; 286 Biblio. Refs.

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2/3

USSR

UDC 669.822.004.2

SHALAYEV, I. L.

"Controlling Radiation Safety at Enterprises for Extraction and Processing of Radioactive Ores"

Vopr. gigiyeny truda na uranov. rudnikakh i obogatit. predpriyatiyakh -- V sb. (Problems of Hygiene of Labor in Uranium Mines and Beneficiation Enterprises -- collection of works), Moscow, Atomizdat Press, 1971, pp 93-103 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G266)

Translation: Survey. A study was made of methods of controlling the radiation level by special dosimetric services at the enterprises and industrial sanitation laboratories of the sanitary inspectorate agencies: determination of pollution of the production atmosphere and emanation concentrations in the air; measurement of external irradiation levels; determination of the concentrations of U, Th, and their daughters in the air of underground mines; control of contamination of special clothing and skin of personnel, and so on. The bibliography has 34 entries.

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USSR

UDC 669.822.004.2

BULYGINA, A. M., NIKIFOROVA, A. YE., SHALAYEV, I. I.

"Hygienic Evaluation of New Technological Schemes used for Hydrometallurgical Processing of Uranium Ores"

Vopr. gigiveny truda na uranov. rudnikakh i obogatit. predpriyatiyakh -- V sb. (Problems of Hygiene of Labor in Uranium Mines and Beneficiation Enterprises -- collection of works), Moscow, Atomizdat Press, 1971, pp 23-27 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G272)

Translation: Labor hygiene has been improved and protection from radiation insured by introducing sorption, extraction, and mechanization of basic production operations and maintenance of the required air flow rates in open passages. Automation is necessary in the future in all steps of the technological process. It is also necessary to mechanize the operations of cleaning the facility, using the most effective detergents for deactivation and to use finishing materials for the walls and floors which are easily deactivated and do not sorb uranium compounds.

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USSR

UDC 51

SHALAYEV, S. V.

"Geological Interpretation of Geophysical Anomalies Using Linear Programming"

Geologicheskoye istolkovaniye geofizicheskikh anomalii s pomoshch'yu lineynogo programmirovaniya (cf. English above), Leningrad, "Nedra", 1972, 144 pp, ill., 96 kop. (from RZh-Matematika, No 11, Nov 72, Abstract No 11V497 K)

Translation: Chapter 1. Formulation of the problem of interpreting geophysical anomalies. Chapter 2. Brief description of linear programming methods used in exploration geophysics. Chapter 3. Evaluation of the limiting values of parameters of geological objects. Chapter 4. Application of linear programming in solving certain problems in structural geology. Chapter 5. Application of linear programming in preliminary exploration of deposits. Chapter 6. Possibilities of applying mathematical programming in exploration geophysics.

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71

USSR

UDC: 51

SHALAYEV, S. V.

"Geological Interpretation of Geophysical Anomalies by Linear Programming"

Geologicheskoye Istolkovaniye Geofizicheskikh Anomaliy s Pomoshch'yu Lineynogo Programirovaniya [English version above], Leningrad, Nedra Press, 1972, 144 pp (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V497K)

Translation: Chapter 1. Statement of the problem of interpretation of geophysical anomalies. Chapter 2. Brief information on methods of linear programming used in prospecting and geophysics. Chapter 3. Estimation of limiting values of parameters of geological objects. Chapter 4. Application of linear programming in the solution of certain problems of structural geology. Chapter 5. Application of linear programming in preliminary prospecting of deposits. Chapter 6. Prospects for the application of mathematical programming to prospecting geophysics.

1/1

USSR

UDC: 621.315.592

PROKHOROV, E. D. and SHALAYEV, V. A.

"Effect of a Magnetic Field on the Generated Domain of a Carrier Force Field under Gunn Effect Shock Ionization Conditions"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 4, No 10, October 1970, pp 1993-1995

Abstract: This brief communication gives the results of experiments performed to clarify the effect of a magnetic field on the excess of voltage above the threshold level across a Gunn diode, in which shock ionization begins to develop in the strong field domain, and the effect of the magnetic field on the carriers generated by the domain. The experiments were made with Gunn diodes 750 μm long. The diodes were checked in a resistive circuit, the duration of their feed pulse was 60-70 ns, and the magnetic field varied in the limits of 0-10,000 oersteds, with the field at right angles to the current. Curves for the reluctance of the diodes as a function of the field and for the diode dynamic characteristics are plotted. It was found that the diode reluctance increased by 15-20% at maximum field intensity of 10,000 oe, and was independent of the specimen orientation. The data show that the field has little effect on the excess voltage across the diode required for shock ionization development.

1/1

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1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EXPERIMENTAL INVESTIGATION OF THE WIDTH OF THE CURRENT VOLTAGE
CHARACTERISTICS OF GUNN DIODES -U-
AUTHOR--(04)-PROKHOROV, E.D., DYADCHENKO, A.V., SHALAYEV, V.A., BELETSKIY,
N.I.
COUNTRY OF INFO--USSR
SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, APR. 1970, P. 792-796
DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, GUNN DIODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FKAME--1996/1424

STEP NO--UR/0109/70/015/000/0792/0796

CIRC ACCESSION NO--AP0118413

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 016

CIRC ACCESSION NO--AP0118413

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE WIDTH OF THE CURRENT VOLTAGE CHARACTERISTICS OF GUNN DIODES AS A FUNCTION OF CARRIER CONCENTRATION, DIODE LENGTH, AND CARRIER MOBILITY. ATTENTION IS GIVEN TO THE RELATION BETWEEN THE WIDTH OF THE CURRENT VOLTAGE CHARACTERISTIC AND RECOMBINATION RADIATION. IT IS SHOWN THAT THE DOMINANT ROLE IN CHANGING THE CURRENT VOLTAGE CURVES OF THE DIODES IS PLAYED BY IMPACT IONIZATION IN A STRONG ELECTRIC FIELD. THE HEATING WHICH LEADS TO DIODE BREAKDOWN AT VOLTAGES EXCEEDING THE WIDTH OF THE CURRENT VOLTAGE CURVE ALSO CAUSES THE DEVELOPMENT OF IMPACT IONIZATION IN A STRONG ELECTRIC FIELD.

UNCLASSIFIED

USSR

UDC 621.382.1.029.6--

PROKHOROV, E. D., DYADCHENKO, A. V., SHALAYEV, V. A. and BELETSKIY, N. I.,
Academy of Sciences of the USSR in Moscow

"An Experimental Investigation of the Width of Gunn Diode Voltage-Current Characteristics"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 4, April 1970, pp. 795-796

Abstract: In these experiments, the authors varied the voltage applied to Gunn diodes from a level corresponding to pure Gunn oscillations, through the development of shock ionization in the domain to breakdown. They determined the width of the voltage current characteristic by a formula expounded by Prokhorov, Shalayev, Beletskiy and Arendar' in the previous issue of Radiotekhnika i Elektronika, as a function of the concentration of primary carriers, the field strength outside the domain, the critical strength of the electrical field in the domain (the strength at which zone-zone shock ionization develops) the average maximum drift speed of electrons and the mobility of the primary carriers. Their experimental results fitted the curve calculated by this formula fairly well; they attribute the discrepancies to the approximate determination of primary carrier concentration and mobility. Their results show the voltage current characteristic width to decrease with increasing concentration and decreasing mobility.

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USSR

PROKHOROV, et al, Radiotekhnika i Elektronika, Vol 15, No 4, April 1970, pp.793-796

They also investigated recombination radiation in the diodes under various conditions. The spectrum of the radiation detected included a peak and a relatively long tail, indicating a fairly high number of levels at the base of the conductivity zone and the top of the valence zone. At voltage levels up to the width of the voltage current characteristic and somewhat beyond the radiation was proportional to the concentration of shock ionized carriers; with intense radiation beginning at voltages above this width. The radiation intensity increases sharply at higher voltage levels, as breakdown is approached.

At voltage levels near the voltage current characteristic width, the radiation is most intensive at the cathode end, indicating shock ionization as the primary cause; at higher voltages, approaching the breakdown level and beyond it, the radiation is most intense in the center of the diode sample, indicating heating as the primary cause.

Diffusing copper at the anode at a temperature of 400°C for 10-20 minutes increased the resistance of the samples and reduced the characteristic width. The authors explained this seeming contradiction by the fact that the copper compensates some of the doping admixtures in the GaAs, but reduces carrier mobility.

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USSR

PROKHOROV, et al, Radiotekhnika i Elektronika, Vol. 15, No. 4, April 1970, pp. 793-796

The duration of the afterglow was found to increase with increasing voltage from the characteristic width to breakdown. In the experimental samples used, the duration of the radiation increased after breakdown, but its intensity remained constant as the voltage increased. The authors take this as an indication that at temperatures of 100°C and higher the concentration of electrons in their samples did not change.

The authors conclude that shock ionization is the primary determinant of the voltage current characteristic width in Gunn diodes, but that heat breakdown also has an effect.

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Construction

USSR

UDC 624.131.43+539.21.084-492.3

KUZNETSOV, G. V., ULYBIN, V. P., SHALAYEV, Yu. I.

"Providing Seismic Protection for Buildings and Equipment on Permafrost During Massive Explosions"

Kolyma, 1972, No. 3, pp 34-36 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8V536)

Translation: Results of an experimental study of seismic oscillations during explosions conducted under permafrost conditions are presented. A relationship was established between the maximum rate of vibration of the ground and the distance, weight of the charge and the retardation time under group explosions. It is noted that the rate increases with a decrease in the retardation time. The dynamic characteristics of buildings constructed on piles are determined and recommendations are made for determining the seismically safe conditions for conducting explosions. V. N. Kostyuchenko.

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Acc. Nr:

AP0048872

Abstracting Service:
CHEMICAL ABST.

Ref. Code

4 R 0 4 6 0

90919v Dependence of the molecular weight of gas-phase polyethylene on particle sizes. Shagilova, A. V.; Shalaeva, L. E. (USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(2), 99 (Russ). Batches of the title polymer, prepd. by polymn. of C_2H_4 in the presence of various amts. of $Et_3Al.TiCl_4$, were divided into fractions of different particle size by sifting. The particle size affected the mol. wt. during polymn. with activated Et_3Al , but not with unactivated Et_3Al . Migration of the Ti component from the catalyst surface and formation of new active centers during reaction with the Al component (which exceeds by several times the equimolar ratio during activation) apparently explain the results obtained.

DBJR

LD

REEL/FRAME
13800642

USSR

UDC 546.799.94

ZVARA, I., BELOV, V. Z., DOMANOV, V. P., KOROTKIN, Yu. S., CHELNOKOV, L. P.,
SHALAYEVSKIY, M. P., SHCHEGOLEV, V. A., and YUSSONNUA, M.

"Chemical Isolation of Kurchatovium"

Leningrad, Radiokhimiya, Vol 14, Vyp 1, 1972, pp 119-122

Abstract: Earlier it was shown that during the irradiation of ^{242}Pu with ^{22}Ne ions with energies of 113-119 mev (for $z = 104$), a short-lived, spontaneously fissionable nuclide was detected whose chemical characteristics corresponded to the characteristics of ekahafnium (Ku). The half lives of ^{259}Ku and ^{260}Ku are about 4.5 and 0.1 sec respectively. For these experiments the target film of plutonium oxide (95% ^{242}Pu) with a density of 0.8 mg/cm² was irradiated with ^{22}Ne ions with an energy of 119 mev. This produced a maximum yield for the reaction $^{242}\text{Pu} (^{22}\text{Ne}, 5n) ^{259}\text{Ku}$. Gaseous nitrogen was passed over the surface of the target then mixed with small amounts of TiCl_2 and SOCl_2 . The slightly volatile tetrachlorides of the radioactive products formed were separated on a chromatograph. A Ge-Li α -radiation detector was used to analyze the gas at different points along the column. The isotopes ^{170}Hf , ^{171}Hf , ^{44}mSe (the latter the product of ^{22}Ne reaction with the Al of the target base), ^{242}Cm and ^{246}Cf (the latter two being products of a transfer reaction). It was
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USSR

ZBARA, I., et al., Radiokhimiya, Vol 14, Vyp 1, 1972, pp 119-122

found that Na, Cs, Ca, Sr, the lanthanides, Np, Pu, Ru, Rh, and Pd are adsorbed only at significantly higher temperatures than Uf (and also the ekahafnium Ku) whereas the chlorides of In, Sn, Nb, Mo, and Tc are adsorbed only at lower temperatures. Photographs of the expected area of Ku adsorption show tracks of fission products which must be those of the ^{259}Ku with a $t-1/2 = 4.5$ sec.

2/2

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USSR

UDC 546.759.94

ZVARA, I., BELOV, V. Z., DOMANOV, V. P., KOROTKIN, YU. S., CHELNOKOV, L. P.,
SHALAYEVSKIY, M. R., SHCHEGOLEV, V. A., and YESSONINA, K.

"Chemical Isolation of Kurchatovium"

Leningrad, Radiokhimiya, Vol 14, No 1, 1972, pp 119-122

Abstract: Earlier it was shown that during the irradiation of ^{242}Pu with ^{22}He ions with energies of 113-119 mev (for $z = 104$), a short-lived, spontaneously fissionable nuclide was detected whose chemical characteristics corresponded to the characteristics of kurchatovium (Ku). The half lives of ^{259}Ku and ^{260}Ku are about 4.5 and 0.1 sec respectively. For these experiments the target film of plutonium oxide ($95\% ^{242}\text{Pu}$) with a density of 0.9 mg/cm^2 was irradiated with ^{22}He ions with an energy of 119 mev. This produced a maximum yield for the reaction $^{242}\text{Pu} (^{22}\text{He}, 5n) ^{259}\text{Ku}$. gaseous nitrogen was passed over the surface of the target then mixed with small amounts of TiCl_2 and SOCl_2 . The slightly volatile tetrachlorides of the radioactive products formed were separated on a chromatograph. A Ge-Li γ -radiation detector was used to analyze the gas at different points along the column. The isotopes ^{170}Hf , ^{171}Hf , ^{259}Se (the latter the product of ^{22}He reaction with the Al of the target base), ^{242}Ga
1/2

ZVARA, I., et al., Radiokhimiya, Vol 14, No 1, 1972, pp 119-122
 and ^{245}Cf (the latter two being products of a transfer reaction). It was
 found that La, Ce, Ca, Sr, the lanthanides, Hf, Pu, Ru, Rh, and Pd are adsorbed
 only at significantly higher temperatures than Hf (and also the einsteinium
 Ku) whereas the chlorides of In, Sn, Sb, Mo, and Tc are adsorbed only at
 lower temperatures. Photographs of the expected area of Ku adsorption show
 tracks of fission products which must be those of the ^{259}Ku with a $t_{1/2} = 4.5$
 sec.

2/2

- 15 -

USSR

UDC: 519.2

KALININ, V. M., SHALAYEVSKIY, O. V.

"The Chi-Square Criterion as a Test for Homogeneity"

Zap. nauch. seminarov. Leningr. otd. Mat. in-ta AN SSSR (Notes of Scientific Seminars. Leningrad Department of the Mathematics Institute, Academy of Sciences of the USSR), 1972, 26, pp 108-123 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8 V137)

Translation: The results of a paper by the authors (Abst. 8V136) are extended to the chi-square criterion of homogeneity of s samples classified with respect to r values of a single distinctive feature. D. Chibisov.

1/1

- 13 -

USSR

UDC 519.2

KALININ, V. M., SHALAYEVSKIY, O. V.

"Studies with Respect to Classical Problems of Probability Theory and Mathematical Statistics. II"

Issledovaniya po klassicheskim problemam teorii veroyatnostey i matematicheskoy statistiki. II. (Zap. nauch. seminarov. Leningr. otd. Mat. in-ta AN SSSR, 26)
(Studies with Respect to Classical Problems of Probability Theory and Mathematical Statistics. II. (Notes on Scientific Seminars. Leningrad Division of the Mathematics Institute of the USSR Academy of Sciences, 26)), Leningrad, Nauka Press, 1972, 123 pp, ill., 65 k. (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V122K)

Translation: The collection is abstracted item by item.

1/1

USSR

UDC 669.71.48

KONONENKO, V. G., SHALBAYAN, A. S., and FILIPETS, YU. G.

"Special Features of the Process of Pulsed Briquetting of Light Alloy Shavings"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Industry and Air Force Technology -- republic interdepartmental scientific and technical collection of works), 1970, vyp 20, pp 130-135 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G126)

Translation: An experimental investigation of the process of pulsed briquetting of light alloy shavings is carried out. The mechanism of briquette formation from light alloys is considered, results of metallographic investigation are presented, and recommendations are made regarding the choice of optimal geometry and the shape of cutting tool which make it possible to obtain briquettes suitable for remelting. 5 ill., 1 table. Authors' abstract

1/1

- 1 -

USSR

UDO 537.533.8:539.216.2

KRYN'KO, YU.N., KOVAL', I.F., MEL'NIK, P.V., NAKHODKIN, N.G., SHALDERVAN, A.I.

"Effect Of Film Structure On The Characteristics Of Secondary Electron Emission"

Vol. 17, p. 12, 1972 [sic] (from RZh:Elektronika i yeye primeneniye, No 7, July 1972, Abstract No 7A12)

Translation: The paper studies the effect of the structure of Ge and Be films, condensed at oblique and normal incidences of an atomic beam at a substrate, on the coefficient of secondary electron emission σ and the inelastic reflection η . With the aid of an electron microscope it is shown that the profile of Ge and Be films consists of needle-like crystals, the axes of which are directed to the side of the beam incidence. Such a structure effects the dependence of σ and η on the angle of incidence of the primary electron beam. The absolute values of σ and η for oblique-deposited films are smaller than for normally deposited films. The greatest difference is observed in the case when the primary electrons are incident upon the target along the direction of the needle. With an increase of the energy of the primary beam, the difference of σ and η normally and of oblique-deposited films is decreased. 4 ill. 7 ref. Author's abstract.

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1/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EXPERIMENTAL DETECTION OF ELECTRICAL GYROTRROPY IN STRONTIUM
MOLYBDATE CRYSTALS -U-
AUTHOR--SHALDIN, YU.V. S
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 67-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--MAGNETIC FIELD, STRONTIUM COMPOUND, MOLYBDENUM COMPOUND,
OXIDE, MOLYBDATE, GYRO, LIGHT POLARIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1131 STEP NO--UR/0020/70/191/001/0067/0069
CIRC ACCESSION NO--AT0116596
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116596

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF THE ROTATION OF THE
LIGHT POLARIZATION PLANE IN A MAGNETIC FIELD FOR SRMOD SUB4 WAS USED TO
DETECT THE ELEC. GYROTROPY. THE EXPTL. VALUE FOR THE EFFECT ALPHA
SUB333 PRIME EQUALS 9 TIMES 10 PRIME NEGATIVE15 CM PRIME2 IS IN GOOD
AGREEMENT WITH THEORETICAL VALUES. FACILITY: INST.
KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--QUASI-REGULARITY OF INFINITE SYSTEMS IN PROBLEMS OF THE THEORY OF
ELASTICITY FOR PLATES WITH CIRCULAR HOLES -U-
AUTHOR-(03)-KOSMODAMIANSKIY, D.S., LOZHKIN, V.M., SHALDIRVAN, V.A.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIYA NAUK UKRAINS'KOI RSR. DOPOVIDI, SERIYA A FIZIKO
TEKHNICHNI I MATEMATICHNI NAUKI, VOL. 32 MAR. 1970, P. 248-250.
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--ELASTICITY, BIBLIOGRAPHY, HOLE IN STRUCTURE, METAL STRESS,
STRAIN, STRESS STRAIN DIAGRAM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0987 STEP NO--UR/0441/70/032/000/0248/0250
CIRC ACCESSION NO--AT0118152
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0118152

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. PROOF OF THE QUASI-REGULARITY OF AN INFINITE SYSTEM OF LINEAR ALGEBRAIC EQUATIONS DESCRIBING THE STRESS-STRAIN STATE OF AN ELASTIC ISOTROPIC CIRCULAR PLATE WITH A FINITE NUMBER OF CIRCULAR HOLES. THE PROBLEM IS REDUCED TO THE DETERMINATION OF TWO FUNCTIONS OF TWO COMPLEX VARIABLES ACCORDING TO PROCEDURES GIVEN BY MUSKHELISHVILI (1965) AND SAVIN (1968). FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, OBCHISLIVVAL'NII TSENTR, DONETSK, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 539.3.01

KOSMODAMIANSKIY, A. S., SHALDYRVAN, V. A., SHALDYRVAN, G. G.

"On the Accuracy of the Solution of Problems of the Elasticity Theory for Thick Plates"

V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadzhnosti sudovyykh konstruktsiy, 1972 (Brief Summaries of Papers at the Conference on Damages and the Operational Reliability of Ship Designs, 1972 -- Collection of Works), Vladivostok, 1972, pp 43-46 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V26)

Translation: The solution of the problem of the stressed state in a thick infinite plate with an opening loaded by an axisymmetric system of normal forces that are antisymmetric relative to the central plane of the plate is presented. The Bubnov-Galerkin method was used in fulfilling the boundary conditions. The infinite algebraic system of equations was solved by the method of computer reduction. The values of stresses on a cylindrical surface of the plate were found and compared with results obtained on the basis of the Kirchhoff theory of thin plates and with results of the asymptotic method. (Aksentyan, O. K., Prikl. mat. i mekh., 1966, Vol 30, No 5, pp 963-970 -- RZhMekh, 1967, Abstract No 4V12). Yu. A. Gruzdev.

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USSR

UDC 539.3.01

KOSMODAMIANSKIY, A. S., SHALDYRVAN, V. A., SHALDYRVAN, G. G.

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V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadzhnosti sudovyykh konstruktsiy, 1972 (Brief Summaries of Papers at the Conference on Damages and the Operational Reliability of Ship Designs, 1972 -- Collection of Works), Vladivostok, 1972, pp 43-46 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V26)

Translation: The solution of the problem of the stressed state in a thick infinite plate with an opening loaded by an axisymmetric system of normal forces that are antisymmetric relative to the central plane of the plate is presented. The Bubnov-Galerkin method was used in fulfilling the boundary conditions. The infinite algebraic system of equations was solved by the method of computer reduction. The values of stresses on a cylindrical surface of the plate were found and compared with results obtained on the basis of the Kirchhoff theory of thin plates and with results of the asymptotic method. (Aksentyan, O. K., Prikl. mat. i mekh., 1966, Vol 30, No 5, pp 963-970 -- RZhMekh, 1967, Abstract No 4V12). Yu. A. Gruzdev.

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USSR

UDC 621.382.5

SEMENYUK, V. A., TOMASHEVICH, N. M., SHALENYI, E. G.

"Use of Semiconductor Materials in Thermopiles With New System of Commutation"

V sb. Nizkotemperaturn. termoalektrich. materialy (Low-Temperature Thermo-electric Materials--Collection of Works), Kishinev, 1970, pp 168-172 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B188)

Translation: Problems connected with reduction of the cost of producing semiconductor thermopiles are considered. An equation is found for the minimum height of the thermoelement, taking account of the waste of semiconductor materials during cutting and polishing. A new method is proposed for commutation of the thermopile without soldering, by means of a clip with a preliminary galvanic covering of the surfaces being joined. 1 ill. 3 ref. Author's Abstract.

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USSR

UDC: 681.327.66:621.317.757

OFENGENDEN, R. G., RATMANSKIY, R. Yu., ANDREYEV, O. M., ~~BEREZIN~~ F. N., DYSENKO, B. N., MATSKEVICH, G. G., ODINETS, G. S., SHALEYKO, M. A.

"A Pulse Analyzer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrabotki, Tovarnyye Znaki, No 11, 1970, Author's Certificate No 265951, filed 25 Jan 68, p 41

Abstract: This author's certificate introduces: 1. A pulse analyzer with memory device of the periodic type, based for instance on a magnetic drum. The analyzer contains an analog-to-code converter, memory unit record and playback amplifiers, a data output module, and a control unit. As a distinguishing feature of the patent, the analyzer is simplified by incorporation of a device which records tags for the beginning and end of isolated segments on an auxiliary field of the periodic memory, a unit which codes these tags with its output connected to the recording amplifier, a tag playback amplifier, a device for decoding the reproduced tags, and a unit which passes pulses located in the isolated segments and which is controlled by the decoding device. 2. A modification of this pulse analyzer which has the distinguishing feature of automatic generation of control signals when predetermined number values are accumulated in selected channels. The analyzer contains a device for recording the indicated numbers on an auxiliary field of the periodic memory in phase with the arrangement of the data

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OFENGENDEN, R. G., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 11, 1970

accumulated in the corresponding channels. Also incorporated in this pulse analyzer is a comparison unit with its inputs connected to the circuit for playback of signals recorded on this field and to the playback amplifier for the information field, while its output is connected to the circuit which shapes the control signals when the accumulated information is equal to or greater than the predetermined numbers. 3. A modification of this analyzer which has the distinguishing feature of numerical integration of the data accumulated in the isolated segments of the band being measured. The output of the pulse pass unit is connected to the input of the comparison unit. 4. A modification of this analyzer which is distinguished by its ability to record additional information in the memory device during data accumulation. The unit contains a commutator whose control input is connected to the track of a synchropulse field on which a signal is recorded which divides the zones where the measured and auxiliary information are recorded on the memory unit of the analyzer.

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UDC: 51

SHALFEYEVA, T. V.

"Algorithm and Program of Calculations for a Multisectoral Model of the United States Economy"

V sb. Probl. postroyeniya i ispol'z. narodnokhoz. modeley (Problems of Constructing and Using National Economic Models--collection of works), Novosibirsk, 1971, pp 288-312 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V448)

Translation: Description, flowchart and text in ALPHA language for the 22-sector model outlined in RZh-Mat 1972, 6V435.

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